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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,779	02/18/2004	Hiroataka Niiya	3693-50	1108
23117	7590	11/22/2005		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER CHEN, WEN YING PATTY	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/779,779	NIIYA, HIROTAKA	
	Examiner	Art Unit	
	Wen-Ying P. Chen	2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/10/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

Applicant's Amendment filed Sept. 20, 2005 has been received and entered. Claims 7-15 are newly added per the Amendment. Claims 1-15 are now pending in the current application.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-7, 11 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ha et al. (US 2002/0113927).

With respect to claim 1 (Amended): Ha et al. disclose in Figure 7 a semi-transmissive display apparatus, in which a plurality of pixels, each including a transmissive region (region corresponding to element 341) and a reflective region, are arranged in a matrix pattern, the apparatus comprising:

a device substrate including, for each of the plurality of pixels, a transparent pixel electrode (element 200) provided in at least the transmissive region, a reflective plate (element 181) provided in the reflective region, and a switching device (element T);

a counter substrate including a common electrode (element 330) and opposing the device substrate; and

a display layer (element 350) interposed between the device substrate and the counter substrate, wherein the device substrate is provided with a color filter (element 191),

an insulating layer (element 250) provided over at least a substantial part of the switching device (element T) so as to be provided between the switching device and the reflective plate (element 181), and wherein no portion of the reflective plate extends below an upper surface of the insulating layer.

As to claim 2: Ha et al. further disclose in Figure 7 that the transparent electrode (element 200) is provided closer to the display layer (element 350) than the color filter (element 191) so as to cover the color filter, whereas the reflective plate (element 181) is provided farther away from the display layer than the color filter and the transparent electrode so as to cover the switching device (element T).

As to claim 5: Ha et al. further disclose in Figure 7 that the reflective plate (element 181) is electrically connected to neither the switching device (element T) nor the transparent electrode (element 200).

As to claim 6: Ha et al. further disclose in Figure 7 that the switching device (element T) is provided farther away from the display layer (element 350) than the color filter (element 191); and the transparent electrode (element 200) is electrically connected to the switching device (element T) via a contact hole formed in the color filter.

As to claim 7 (New): Ha et al. further disclose in Figure 7 that the reflective plate (element 181) is not electrically connected to the switching device (element T) and is not electrically connected to the transparent electrode (element 200).

As to claim 11 (New): Ha et al. disclose in Figure 7 a semi-transmissive display apparatus, in which a plurality of pixels, each including a transmissive region (region corresponding to element 341) and a reflective region, are arranged in a matrix pattern, the apparatus comprising:

a device substrate including, for each of the plurality of pixels, a transparent pixel electrode (element 200) provided in at least the transmissive region, a reflective plate (element 181) provided in the reflective region, and a switching device (element T);

a counter substrate including a common electrode (element 330) and opposing the device substrate; and

a display layer (element 350) interposed between the device substrate and the counter substrate, wherein the device substrate is provided with a color filter (element 191), and

wherein the transparent electrode (element 200) is provided closer to the display layer (element 350) than the color filter (element 191) so as to cover the color filter, whereas the reflective plate (element 181) is provided farther away from the display layer than the color filter and the transparent electrode so as to cover the switching device (element T) along the profile of a surface of the switching device.

As to claim 14 (New): Ha et al. further disclose in Figure 7 that the reflective plate (element 181) is electrically connected to neither the switching device (element T) nor the transparent electrode (element 200).

As to claim 15 (New): Ha et al. further disclose in Figure 7 that the switching device (element T) is provided farther away from the display layer (element 350) than the color filter

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(element 191); and the transparent electrode (element 200) is electrically connected to the switching device (element T) via a contact hole formed in the color filter.

***Claim Rejections - 35 USC § 103***

Claims 3-4, 8-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ha et al. (US 2002/0113927) in view of Ozawa et al. (US 2003/0076464).

With respect to claims 3 and 4: Ha et al. disclose all of the limitations set forth in the previous claims but fail to disclose an interlayer insulating film provided between the color filter and the transparent electrode.

However, Ozawa et al. disclose in Figure 1C a display apparatus comprising an interlayer insulating film (element 6) made of a resin (Paragraph 0065, wherein the film is made of photoresist material, which is typically resin films) provided between the color filter (element 81) and the transparent electrode (element 11) so as to cover the reflective plate (element 4), and a thickness of the interlayer insulating film is determined so that a total optical path length for light traveling through the transmissive region is substantially equal to that for light traveling through the reflective region (Paragraphs 0065 and 0069).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a semi-transmissive display apparatus as taught by Ha et al. wherein an interlayer insulating film is provided between the color filter and the transparent electrode as taught by Ozawa et al., since Ozawa et al. teach that the thickness adjusting interlayer insulating film helps to adjust the liquid crystal layer thickness between the reflective

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and transmissive regions so that the contrast of the display is improved and thus achieves a high quality color display (Paragraph 0069).

As to claims 8 and 9 (New): Ha et al. disclose in Figure 7 a transfective liquid crystal display apparatus comprising at least one pixel having a transmissive region (region corresponding to element 341) and a reflective region each contributing to display, the apparatus comprising:

an active substrate including, for the pixel, a transparent pixel electrode (element 200) provided in at least the transmissive region, a reflector (element 181) provided in the reflective region, and a switching device (element T) electrically communicating with the transparent pixel electrode (element 200);

a counter substrate including a common counter electrode (element 330) and opposing the active substrate; and

a display layer (element 350) provided between the active substrate and the counter substrate, wherein the active substrate includes a color filter (element 191) provided in the reflective region and the transmission region of the pixel.

Ha et al. fail to disclose an interlayer insulating film provided between the color filter and the transparent electrode for adjusting the thickness of the liquid crystal layer.

However, However, Ozawa et al. disclose in Figure 1C a display apparatus comprising an interlayer insulating film (element 6) made of a resin (Paragraph 0065, wherein the film is made of photoresist material, which is typically resin films) provided between the color filter (element 81) and the transparent electrode (element 11) so as to cover the reflective plate (element 4) (Paragraphs 0065 and 0069).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a semi-transmissive display apparatus as taught by Ha et al. wherein an interlayer insulating film is provided between the color filter and the transparent electrode as taught by Ozawa et al., since Ozawa et al. teach that the thickness adjusting interlayer insulating film helps to adjust the liquid crystal layer thickness between the reflective and transmissive regions so that the contrast of the display is improved and thus achieves a high quality color display (Paragraph 0069).

As to claim 10 (New): Ha et al. further disclose in Figure 7 that the reflective plate (element 181) is not electrically connected to the switching device (element T) and is not electrically connected to the transparent electrode (element 200).

As to claims 12 and 13 (New): Ha et al. disclose all of the limitations set forth in claim 11, but fail to disclose an interlayer insulating film provided between the color filter and the transparent electrode.

However, Ozawa et al. disclose in Figure 1C a display apparatus comprising an interlayer insulating film (element 6) made of a resin (Paragraph 0065, wherein the film is made of photoresist material, which is typically resin films) provided between the color filter (element 81) and the transparent electrode (element 11) so as to cover the reflective plate (element 4), and a thickness of the interlayer insulating film is determined so that a total optical path length for light traveling through the transmissive region is substantially equal to that for light traveling through the reflective region (Paragraphs 0065 and 0069).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a semi-transmissive display apparatus as taught by Ha et al.



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wherein an interlayer insulating film is provided between the color filter and the transparent electrode as taught by Ozawa et al., since Ozawa et al. teach that the thickness adjusting interlayer insulating film helps to adjust the liquid crystal layer thickness between the reflective and transmissive regions so that the contrast of the display is improved and thus achieves a high quality color display (Paragraph 0069).

### ***Response to Arguments***

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen  
Examiner  
Art Unit 2871

WPC  
11/17/05

  
ANDREW SCHECHTER  
PRIMARY EXAMINER